failing to particularly point out and distinctly claim the subject matter of the invention.

First, the Final Office Action states that "[t]he independent claims note the invention in terms of function with no structure except an apparatus which performs the function" and that "it is very broad and nearly fails to provide enablement." Final Office Action at 3.

As stated in the response to the previous Office Action, there is absolutely nothing inherently wrong with defining some part of an invention in functional terms -- functional language does not, in and of itself, render a claim improper. See In re Swinehart, 439 F.2d 210 (C.C.P.A. 1971); M.P.E.P. § 2173.05(g). Applicants do not concede that "[t]he independent claims note the invention in terms of function with no structure" as alleged. In this regard, it is respectfully submitted that at least claims 19 to 30 specifically recited the structure of the claimed apparatus. See, In re Venezia, 189 U.S.P.Q. 149 (C.C.P.A. 1976). Furthermore, breadth is simply not to be equated with indefiniteness. See In re Miller, 441, F.2d 689 (C.C.P.A. 1971); M.P.E.P. § 2173.04. Regardless of breadth, if the scope of the subject matter embraced by the claims is clear, and if Applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. § 112, second paragraph. Id.

Thus, the Final Office Action's continued reliance on the claims' alleged lack of structure and undue breadth for supporting indefinite rejections of these claims is entirely without merit and contrary to well established law.

Furthermore, whether the claims of the present application "nearly fail to provide enablement" is entirely irrelevant with respect to the 35 U.S.C. § 112, second paragraph, rejections of these claims. Questions of enablement arise, if at all, only in context with 35 U.S.C. § 112, first paragraph, rejections. Since the claims were not rejected under 35 U.S.C. § 112, first paragraph, it is

respectfully submitted that the claims fully comply with the requirements of the first paragraph of 35 U.S.C. § 112, including the enablement requirement.

The Final Office Action also contends that "while the event and time characteristics are alluded to on page 25, there is no proper antecedent basis for the terms themselves found in the disclosure." Final Office Action at p. 3. Applicants note however, that "[t]here is no requirement that the words in the claim must match those used in the specification disclosure" and that "Applicants are given a great deal of latitude in how they choose to define their invention so long as the terms and phrases used define the invention with a reasonable degree of clarity and precision." M.P.E.P. § 2173.05(f) (emphasis added).

Furthermore, the Final Office Action states that "[a]t least claim 4 notes the threshold and gap, which terms are not clearly understood in the context of the claims." Final Office Action at p. 3. However, the definiteness of claim language must be analyzed, not in a vacuum, but in light of the content of the particular application disclosure, the teachings of the prior art and the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. M.P.E.P. § 2173.02. In this regard, the Examiner will note that the Specification states at page 25, lines 11 to 16:

> In the present invention, instead of closing the charge switch 3 again after the current has fallen below the lower limit, and thus allowing the current to rise again, the activation system according to the present invention provided for generating, if necessary, a current that can exhibit gaps and thus results in a lower average current.

With regard to claim 18, Applicants point out, **for the second time**, that claim 18 has been canceled without prejudice. It is therefore respectfully submitted that the present rejection is moot with respect to claim 18.

With regard to claims 19 to 38, Applicants respectfully note that the Final Office Action has not

provided any rationale why these claims are allegedly indefinite. As stated in the M.P.E.P., if a claim is rejected as indefinite, "the Examiner should point out wherein the indefiniteness resides . . . [and a] plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all claims in the group." M.P.E.P. § 707.07(d).

The Final Office Action also makes inference that Applicants have "failed to provide a best mode." Final Office Action at p. 3. The Federal Circuit has established that a proper best mode analysis has two components:

> The first is whether, at the time the inventor filed his patent application, he knew of a mode of practicing his claimed invention that he considered to be better than any other. This part of the inquiry is wholly subjective, and resolves whether the inventor must disclose any facts in addition to those sufficient for enablement. If the inventor in fact contemplated such a preferred mode, the second part of the analysis compares what he knew with what he disclosed - is the disclosure adequate to enable one skilled in the art to practice the best mode or, in other words, has the inventor "concealed" his preferred mode from the "public"?

Chemcast Corp. v. Arco Industries Corp., 913 F.2d 923, 16 U.S.P.Q.2d 1033, 1036 - 37 (Fed. Cir. 1990). "Unless the examiner has evidence that the inventors had information in their possession . . . at the time the application was filed . . . that a mode was considered to be better than any others by the inventors . . . there is no reason to address the second component and there is no proper basis for a best mode rejection." M.P.E.P. § 2165.03 (emphasis added). Contrary to Federal Circuit precedent, the Examiner has not even asserted that the inventor possessed information at the time the application was filed that a mode was considered by the inventor to be better than any others. Accordingly, it is respectfully submitted that the best mode requirement of 35 U.S.C. § 112 has been satisfied.

In view of the foregoing, it is respectfully submitted that all of the pending claims fully comply with the requirements of 35 U.S.C. § 112, and withdrawal of these rejections is therefore respectfully requested.

II. REJECTIONS OF CLAIMS 1 TO 6, 8 TO 17, AND 19 TO 38 UNDER 35 U.S.C. § 102(b)

Claims 1 to 6, 8 to 17, and 19 to 38 were rejected under 35 U.S.C. § 102(b) as anticipated by European Published Patent Application No. 0 871 230 (hereinafter "Reineke"). Applicants respectfully submit that Reineke does not anticipate the present claims for at least the following reasons.

Independent claim 1 relates to an apparatus for charging or discharging a piezoelectric element, characterized in that a current is regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current.

Reineke purportedly concerns a method and a device for charging and discharging a piezoelectric element, in which both the charging and discharging occur, at least partially, via the same inductive element. Referring to Figure 1 of Reineke, there is seen a charging/discharging circuit having a piezoelectric element 1. One of the terminals of the element 1 is connected to ground and the other terminal is connected to a first pole of a voltage source via a coil 2, charging switch 3, and diode 4, as well as to a second pole of the voltage source via the coil 2, discharging switch 5 and diode 6.

Piezoelectric element 1 is charged and discharged in a switch mode (i.e., a timed manner), so that the charging switch 3 and discharging switch 5 are arbitrarily and repeatedly opened and closed during the charging and discharging process.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814

F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

As regards claim 1, it is respectfully submitted that Reineke does not identically disclose each and every limitation of this claim. Specifically, Reineke does not disclose that "a current is regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current." As stated above, Reineke describes a charging and a discharging procedure, in which the charging switch 3 and discharging switch 5 are arbitrarily and repeatedly opened and closed during the charging and discharging process, independent of current. Reineke simply does not disclose any device, method, or arrangement for regulating current, much less regulating current "as a function of a time characteristic and an event characteristic to achieve an effective low average current," as recited in claim 1.

While at least one of the Figures of the present invention illustrates circuitry that appears to be similar to circuitry illustrated in the Figures of Reineke, regardless of the apparent similarity, Reineke simply does not anticipate the subject matter of claim 1 since Reineke does not identically disclose each and every limitation as set forth in the claims.

Applicants note that the Figures of the present Application are a part of the disclosure, not the claims. As such, the Figures may be used only to help interpret the claims, not to define the metes and bounds of the claims. Thus, contrary to the assertions contained in the Final Office Action, Applicants do not "admit that their [F]igure 1 is their intended invention." Rather, the invention of the

present application is set forth in the claims. Thus, the Final Office Action's conclusory assertion that the alleged similarity of Figures necessarily renders the subject matter of the claims anticipated by Reineke is entirely without merit. In particular, the allegation that "[Applicants] show the exact same invention as shown by [Reineke], it logically follows that the arrangement and functionality are met by [Reineke]" is without merit since neither the Figures of Reineke nor the description of Reineke identically discloses each and every limitation as set forth in the present claims.

Quite the contrary, regardless of the apparent similarity of circuits, Reineke simply does not anticipate the subject matter of claim 1. As recited in claim 1, the charging and discharging currents are regulated "as a function of a time characteristic and an event characteristic to achieve an effective low average current." With respect to the circuit of Figure 1, for example, current regulation may be performed by opening and closing switches 3, 5, such that gaps are provided in the charging/discharging cycle when necessary to achieve the low average current. (See Specification, p. 9, line 27 to p. 10, line 3).

Although Reineke appears to disclose a charging/discharging circuit in Figure 1, in which switches 3, 5 may be repetitively opened and closed, Reineke does not disclose, illustrate, or otherwise state that these switches 3, 5 are controlled, such that a charging or discharging current is regulated "as a function of a time characteristic and an event characteristic to achieve an effective low average current," as recited in claim 1. That is, unlike Reineke which **arbitrarily** opens and closes switches 3, 5 to charge the piezoelectric element, claim 1, to the extent that this claim encompasses the subject matter illustrated in Figure 1, would require that the switches 3, 5 be **specially controlled** to regulate current "as a function of a time characteristic and an event characteristic."

As regards independent claims 12, 13, 19, 29, 31, and 35, these claims each recite regulating a current "as a function of a time characteristic and an event characteristic to achieve an effective low average current." As such, the arguments stated above with respect to claim 1 apply equally to these claims.

As regards independent claim 17, this claim relates to a method for charging or discharging a piezoelectric element, in which "definition is made, prior to charging or discharging, for an absolute value of the current for charging or discharging the piezoelectric element . . . as a function of a time characteristic of the fuel injection system."

As regards independent claim 37, this claim relates to a method for charging and discharging a piezoelectric element of a fuel injection system, comprising the steps of: defining an absolute value of a current for one of charging and discharging the piezoelectric element as a function of a time characteristic of the fuel injection system; and one of charging and discharging the piezoelectric element after the defining step.

As stated above, Reineke describes a charging and a discharging procedure, in which the charging switch 3 and discharging switch 5 are arbitrarily and repeatedly opened and closed during the charging and discharging process. However, Reineke simply does not define an absolute value of current, much less define an absolute value of current "as a function of a time characteristic of the fuel injection system," as recited in claims 17 and 37.

For at least the foregoing reasons, it is respectfully submitted that Reineke does not anticipate claims 1, 12, 13, 17, 19, 29, 31, 35, and 37. Furthermore, since claims 2 to 6 and 8 to 11 ultimately depend from claim 1, since claims 14 to 16 ultimately depend from claim 12, since claims 20 to 28 ultimately depend from claim 19, since claim 30 depends from claim 29, since claims 32 to 34 ultimately depend from claim 31, since claim 36 depends from claim 35, and since claim 38 depends from claim 37, it is respectfully

submitted that Reineke does not anticipate these dependent claims for at least the same reasons.

Accordingly, it is kindly requested that the rejections of claims 1 to 6, 8 to 17, and 19 to 38 under 35 U.S.C. § 102(b) be withdrawn.

III. REJECTION OF CLAIM 7 UNDER 35 U.S.C. § 103(a)

Claim 7 was rejected under 35 U.S.C. § 103(a) as unpatentable over Reineke. It is respectfully submitted that Reineke does not render obvious claim 7 for the following reasons.

Claim 7 depends from claim 1 and therefore includes all of the limitations of claim 1. As more fully set forth above with respect to claim 1, it is respectfully submitted that Reineke does not disclose, or even suggest, that the current is regulated "as a function of a time characteristic and an event characteristic to achieve an effective low average current," as recited in claim 1.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). As indicated above, Reineke does not disclose, or even suggest, the "current . . . regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current,"

as recited in claim 1. It is therefore respectfully submitted that Reineke does not render obvious claim 7, which depends from claim 1.

Moreover, it is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Final Office Action's generalized assertions that it would have been obvious to modify or combine references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Final Office Action reflects a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

> The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .
>
> . . . .
>
> **Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> **Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary**

> **skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

That is exactly the case here since it is believed and respectfully submitted that the Final Office Action offers no evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify or combine references to provide the claimed subject matter of the claims to address the problems met thereby. Accordingly, the Office must provide proper evidence of a motivation for modifying or combining the reference to provide the claimed subject matter.

More recently, the Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" -- which is not the case here -- there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed," stating that:

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board

> did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Again, it is believed that there have been no such findings.

The Final Office Action also contends that "[t]he shape of the signal is arbitrary however and is clearly equivalent to other types of signals that would perform the same function and which shape, is well within the skills of a routineer in the art to produce." Final Office Action at p. 6. Applicants respectfully disagree. The shape of the signal is not arbitrary as alleged by the Final Office Action. Moreover, the contention that the square-wave "is well within the skills of a routineer in the art to produce" is plainly indicative that the present rejection is improperly based on an "obvious to try" standard and cannot support an obviousness determination. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993) (a statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill in the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to established a prima facie case of obviousness without some objective reason to combine the teachings of the references).

Accordingly, there is no evidence that the reference relied upon, whether taken alone or modified, would provide the features and benefits of claim 7, which ultimately depends from claim 1. It is therefore respectfully submitted that claim 7 is allowable for these reasons.

IV. CONCLUSION

It is respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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